Remarks

Claims 2, 4, 5, 8, 9, 10 and 11 have been canceled. New claims 12 to 35 have been added. This response corrects the amendments made to the claims, which we understand were not previously entered, by showing the canceled claims as "canceled" only and not by reciting the entire claim, struck through. Additionally, the claims presently amended are annotated as "Currently Amended".

Among other things, Claim 1 has been amended to stipulate:

1) that it addresses a portable ionizer;
2) for the presence of an electrical circuit adapted be powered by a low-voltage current supplied by a battery;
3) to identify an electrode connection means to provide for a counter-electrode to be connected to the electrical circuit; and
4) to stipulate that the ion-emitter is exposed for direct manual contact by a user and for release of ions into the surrounding environment.

Claim 3 has been amended to depend from Claim 1, and to add a step-up transformer and the expression "output capacitor means". Claim 6 is amended to provide that the electrode connection means comprises a conductive connection means for connecting to an external body. And Claim 7 is amended to depend from Claim 6 as well as to stipulate that the pendant is for attachment to a human being.

Support for these elements may be found as follows:

Claim 1 (a) - Page 7, Lines 16 - 25; Figure 3.

(b) - Page 6, Lines 2 - 4; Figures 1, 2, 4.

(c) - Page 8, Lines 15 - 16; Figure 6.

(d) - Page 8, Line 7, 14; Figures 3, and 5.

Claim 3 - Page 6, Line 5; Lines 15 - 17.

Claim 6 - Page 7, Lines 18 – 25; Figure 3.

- Page 8, Lines 15 - 16; Figure 6.

Claim 7 - Page 7, Lines 18 - 25; Figure 3.

Claims 12 to 23 have been added to address the aspect of the invention whereby the unit has a conductive connection means for connection to an external body which serves, at least in part of, as a counter-electrode. This feature corresponds to Claim 6.

Claim 13 corresponds to Claim 7 in stipulating for the conductive strap to serve as a pendant.

Claims 14 and 15 correspond to Claim 3 in addressing the presence of a step-up transformer and diode-capacitor multiplier network.

Claims 16 to 19 correspond to the intermittent oscillation features of Claim 1.

Claims 20 to 23 add the feature supported in the disclosure at page 6, line 22 respecting the duty cycle range of the intermittent oscillations .

Claims 24 to 35 restate the features of claims 12 to 23 on the basis that in claim 24 the external body is a human body.

The use of "an external body" in Claims 6 and 12 is to ensure that these claims address not only the case of Figure 3, but also Figure 6 as well as other external bodies.

The examiner' s observations respecting the use of form PTO-1449 are noted and appreciated. It is believed that the correct form number now used is PTO/SB/08A.

The examiner had applied Lau as a 35 USC 102 reference to all of the original claims 1 to 11. This is inappropriate for the claims as now pending for the following reasons.

Claim 1 stipulates at para 1b) for the presence of "an output capacitor means". There is no teaching in Lau as to the presence of such an output capacitor. Figure 3B, which is a schematic of the circuit in Lau, does not show the presence of such a capacitor. The disclosure does propose a duty cycle of 10% (column 6, line 52), but clearly teaches that pulses are being delivered by the high-voltage generator to the electrodes: "When voltage or pulses from the high-voltage generator 170 are coupled across first and second electrode arrays 230 and 240...." (Column 7, lines 56-58). At column 8, lines 45 to 48 of Lau it is observed that adjusting the duty cycle can increase the ion content. Clearly, this indicates that Lau contemplates the presence of an intermittent high-voltage potential across the first and second electrode arrays 230, 240.

By way of contrast, Claim 1 as now amended stipulates that, notwithstanding intermittent oscillations of the oscillator, "... ion emission continues from said ion-emitter during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means". Accordingly, a 35 USC 102 rejection of Claim 1 is not justified. Since Claim 1 is allowable, Claims 3, 6 and 7 dependent therefrom are also allowable. Nevertheless, these dependant claims add elements that render them patentably distinct from Lau.

The examiner had rejected Claim 6 on the basis that Lau depicts a flexible cord 101 to connect Lau's system to the human body. The features of Claim 6 have now also been introduced into new independent Claims 12 and 24 as referenced above.

In fact, there is no teaching in Lau or any reference to use of a conductive cord. The Lau unit is suspended by "a flexible cord 101 from the neck of the user" (Column 5 line 1).

Figure 2B shows this cord 101 as extending around and below the collar of the user. Clearly, the disclosure of spaced-apart first and second arrays of conducting electrodes of

Lau does not contemplate the use of the cord as an electrical connection that would allow the human body to function efficiently as a counter-electrode. Accordingly, both Claims 6, 7, and independent Claims 12 and 24 are patentably distinct in view of Lau.

Since Claims 12 and 24 are clearly allowable, so are their dependent claims 13-20 and 25-35. Nevertheless, these claims add features which in themselves fully support patentability.

The applicant is contemporaneously providing a supplementary IDS based on further located prior art. None of this art is considered to interfere with the claims as now pending.

Accordingly, reconsideration and a favorable ruling by the examiner is requested.

Respectfully submitted,

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1. (Currently amended) A portable battery operated ionizer comprising:

a) ~~a battery connected to provide low voltage current to~~ an electrical circuit adapted to be powered by a low-voltage current supplied by a battery;

b) an oscillator circuit within the electrical circuit for being powered by the low-voltage current supplied by the battery, ~~for driving~~ said oscillator circuit being connected to a voltage conversion circuit to provide an ionizing voltage to an output capacitor means;

c) an ion-emitter connected to receive charge from the voltage conversion circuit and output capacitor means, said ion-emitter being exposed for possible direct manual contact by a user and for release of ions into the surrounding environment ; and

d) electrode connection means to provide for a counter-electrode to be connected to said electrical circuit, to induce the emission of ions from the ion-emitter,

wherein said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means is an ionizing voltage and wherein, ion emission continues from said ion-emitter during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

2. (Canceled)

3. (Currently amended) An ionizer as in claim 1 ~~2~~ wherein the voltage conversion circuit comprises a high voltage step-up transformer and the output capacitor means comprises a diode-capacitor multiplier network driven by the transformer for producing said ionizing voltage.

4. (Canceled)

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5. (Canceled)

6. (Currently amended) An ionizer as in claim 1 wherein said electrode connection means comprises ~~comprising~~ a conductive connection means whereby ~~a human~~ an external body may become electrically connected to said electrical circuit to serve as at least part of the counter-electrode.

7. (Currently amended) An ionizer as in claim 6 ~~1~~ wherein said conductive connection means is a conductive strap that supports the ionizer as a pendant for attachment to a human being as the external body.

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (New) A battery-operated ionizer comprising:

a) an electrical circuit adapted to be powered by a low-voltage current supplied by a battery;

b) an oscillator circuit within the electrical circuit for being powered by the low-voltage current supplied by the battery;

c) a voltage conversion circuit connected to the oscillator circuit to provide an ionizing voltage to an output capacitor means;

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d) an ion-emitter connected to receive charge from the voltage conversion circuit and output capacitor means and provide ion-emission, and

e) a conductive connection means whereby an external body may become electrically connected to said electrical circuit to serve as, at least, part of a counter-electrode to induce emission of ions by the ion-emitter.

13. (New) An ionizer as in claim 12 wherein said conductive connection means is a conductive strap that supports the ionizer as a pendant for attachment to a human being as the external body.

14. (New) An ionizer as in claim 12 wherein the voltage conversion circuit comprises a diode-capacitor multiplier network driven by a transformer for producing said ionizing voltage, and said diode-capacitor multiplier network comprises said out put capacitor means.

15. (New) An ionizer as in claim 13 wherein the voltage conversion circuit comprises a diode-capacitor multiplier network driven by a transformer for producing said ionizing voltage, and said diode-capacitor multiplier network comprises said out put capacitor means.

16. (New) An ionizer as in claim 12 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means is an ionizing voltage and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

17. (New) An ionizer as in claim 13 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at

the output capacitor means provides said ionizing voltage while oscillations are occurring, band wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

18. (New) An ionizer as in claim 14 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring, and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

19. (New) An ionizer as in claim 15 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring, and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

20. (New) An ionizer as in claim 16 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

21. (New) An ionizer as in claim 17 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

22. (New) An ionizer as in claim 18 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is

producing oscillations.

23. (New) An ionizer as in claim 19 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

24. (New) A battery-operated ionizer comprising:

a) an electrical circuit adapted to be powered by a low-voltage current supplied by a battery;

b) an oscillator circuit within the electrical circuit powered by the low-voltage current supplied by the battery;

c) a voltage conversion circuit connected to the oscillator circuit to provide an ionizing voltage to an output capacitor means;

d) an ion-emitter connected to receive charge from the voltage conversion circuit and output capacitor means, and

e) a conductive connection means whereby a human body may become electrically connected to said electrical circuit to serve as a counter electrode to induce emission of ions by the ion-emitter.

25. (New) An ionizer as in claim 24 wherein said conductive connection means is a conductive strap that supports the ionizer as a pendant.

26. (New) An ionizer as in claim 24 wherein the voltage conversion circuit comprises a diode-capacitor multiplier network driven by a transformer for producing said ionizing voltage, and said diode-capacitor multiplier network comprises said out put capacitor means.

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27. (New) An ionizer as in claim 25 wherein the voltage conversion circuit comprises a diode-capacitor multiplier network driven by a transformer for producing said ionizing voltage, and said diode-capacitor multiplier network comprises said out put capacitor means.

28. (New) An ionizer as in claim 24 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring, and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

29. (New) An ionizer as in claim 25 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring, and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

30. (New) An ionizer as in claim 26 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring, and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

31. (New) An ionizer as in claim 27 comprising intermittent oscillator control means whereby said oscillator produces intermittent oscillations such that the voltage established at the output capacitor means provides said ionizing voltage while oscillations are occurring,

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and wherein said ion emission continues during the time the oscillator is not producing oscillations, supplied by charge from the output capacitor means.

32. (New) An ionizer as in claim 28 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

33. (New) An ionizer as in claim 29 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

34. (New) An ionizer as in claim 30 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.

35. (New) An ionizer as in claim 31 wherein the oscillator, when it is not producing oscillations, is not producing oscillations for up to ten times as long as when the oscillator is producing oscillations.